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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/698,219	10/30/2000	Taichi Kobayashi	Q61467	6374

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SUGHRUE, MION, ZINN, MACPEAK & SEAS
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Washington, DC 20037-3202

EXAMINER
GOFF II, JOHN L

ART UNIT	PAPER NUMBER
1733	

DATE MAILED: 09/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/698,219	KOBAYASHI ET AL.	
	Examiner	Art Unit	
	John L. Goff	1733	

-- Th MAILING DATE of this communication appears on th cover sh t with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 July 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 7-32* is/are pending in the application.

4a) Of the above claim(s) *12-32* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 7-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 October 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. This action is in response to Amendment B filed on 7/1/03.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102/103

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 2, 7(1), and 7(2) are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shimada et al. (U.S. Patent 5,662,972).

Shimada et al. are directed to bonding a fluorine resin, e.g. ETFE, to a polyamide, e.g. vinyl acetate copolymer. Shimada et al. teach subjecting the fluorine resin to a corona discharge treatment in an inert gas atmosphere, e.g. nitrogen, containing an organic compound having a functional group prior to bonding with the polyamide. Shimada et al. teach the corona discharge treatment produces functional groups on and within the surface of the fluorine resin resulting in a surface having improved adhesive properties (Column 1, lines 15-17 and 64-66 and Column 2,

lines 3 and 21-67 and Column 4, lines 5 and 6). As to the absorbance, it is noted that absorbance is directly related to the number of functional groups on the surface of the fluorine resin such that because Shimada et al. is solely directed to the formation of functional groups on the surface of the fluorine resin it appears the surface of the fluorine resin taught by Shimada et al. would have the claimed absorbance at 360 nm. In the event it is seen that the surface does not have the claimed absorbance, it is noted Shimada et al. is solely directed to a method for creating a fluorine resin having a surface containing a number of functional groups sufficient to create a strong adhesive surface such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a number of functional groups on the surface sufficient to create the strong adhesive surface which would directly result in the surface having the claimed absorbance at 360 nm.

5. Claims 1, 2, 7(1), 7(2), 8, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art (Specification pages 1 and 2).

The admitted prior art is directed to a laminate for use in bonding to the surface of a building material or a solar cell for surface protection, impartment of a stain resistance, sealing and the like. The admitted prior art teaches the laminate comprises a fluorine resin bonded to a crosslinking elastic adhesive body, e.g. ethylene-vinyl acetate copolymer (EVA) or the like. The admitted prior art teaches subjecting the fluorine resin to a corona discharge prior to bonding with the crosslinking adhesive body to produce functional groups on and within the surface of the fluorine resin. The functional groups on and within the surface of the fluorine resin create a strong bond between the fluorine resin and the crosslinking adhesive body (Specification page 1, lines 22-37 and page 2, lines 1-7). As to the absorbance, it is noted that absorbance is directly

related to the number of functional groups on the surface of the fluorine resin such that because the admitted prior art is solely directed to the formation of functional groups on the surface of the fluorine resin, e.g. by corona discharge, it appears the surface of the fluorine resin taught by the admitted prior art would have the claimed absorbance at 360 nm. In the event it is seen that the surface does not have the claimed absorbance, it is noted the admitted prior art is solely directed to a method for creating a fluorine resin having a surface containing a number of functional groups sufficient to create a strong adhesive surface such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a number of functional groups on the surface sufficient to create the strong adhesive surface which would directly result in the surface having the claimed absorbance at 360 nm.

Claim Rejections - 35 USC § 103

6. Claims 3, 4, 7(3), and 7(4) are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. in view of Kreil et al. (U.S. Patent 4,594,262).

Shimada et al. are directed to bonding a fluorine resin, e.g. ETFE, to a polyamide, e.g. vinyl acetate copolymer. Shimada et al. teach subjecting the fluorine resin to a corona discharge treatment in an inert gas atmosphere, e.g. nitrogen, containing an organic compound having a functional group prior to bonding with the polyamide. Shimada et al. teach the corona discharge produces functional groups on and within the surface of the fluorine resin resulting in a surface having improved adhesive properties (Column 1, lines 15-17 and 64-66 and Column 2, lines 3 and 21-67 and Column 4, lines 5 and 6). Shimada et al. do not specifically teach the oxygen content of the inert gas atmosphere as it is noted that the inert gas atmosphere taught by Shimada

et al. would have some small oxygen concentration. One of ordinary skill in the art at the time the invention was made would have readily appreciated that the inert gas atmosphere taught by Shimada et al. would contain an oxygen concentration of 100 parts per million (ppm) or less as it was well known in the art that an inert atmosphere has a small concentration of oxygen not to exceed 100 ppm as shown for example by Kreil et al. As to excluding an oxygen concentration of 0-3 ppm, it is noted the inert atmosphere will always have a small ppm of oxygen such that it is readily understood in the art that an inert atmosphere does not require 0 ppm. Additionally, extra processing is required to achieve near 0 ppm and this extra effort is clearly not contemplated by Shimada et al. or Kreil et al. such that both references are seen to teach conventional inert atmospheres wherein it would have been readily recognized that these atmospheres would include more than 4 ppm of oxygen. Further as to applicants results, while it is noted applicant shows unexpected results for 2 ppm as compared to 4 ppm the processing conditions required to achieve 2 ppm are not clear, and it is unclear if additional effort was required to reduce the inert atmosphere to 2 ppm that was not required to reduce the inert atmosphere to 4 ppm.

Kreil et al. are directed to adhesion promoting processes in an inert gas atmosphere. Kreil et al. teach that by inert atmosphere is meant an environment comprising a gas such as nitrogen gas and containing no more than 100 ppm of oxygen (Column 3, lines 28-32).

7. Claims 3, 4, 7(3), 7(4), 8, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Shimada et al. and Kreil et al.

The admitted prior art is directed to a laminate for use in bonding to the surface of a building material or a solar cell for surface protection, impartment of a stain resistance, sealing

and the like. The admitted prior art teaches the laminate comprises a fluorine resin bonded to a crosslinking elastic adhesive body, e.g. ethylene-vinyl acetate copolymer (EVA) or the like. The admitted prior art teaches subjecting the fluorine resin to a corona discharge prior to bonding with the crosslinking adhesive body to produce functional groups on and within the surface of the fluorine resin. The functional groups on and within the surface of the fluorine resin create a strong bond between the fluorine resin and the crosslinking adhesive body (Specification page 1, lines 22-37 and page 2, lines 1-7). The admitted prior art is silent as to the atmosphere for performing the corona discharge process. One of ordinary skill in the art at the time the invention as made would have readily appreciated performing the corona discharge process taught by the admitted prior art in an atmosphere comprising an inert gas such as nitrogen as it was well known in the art to subject a fluorine resin to a corona discharge treatment in this type of atmosphere to produce functional groups on the surface of the fluorine resin as shown for example by Shimada et al.

Regarding the oxygen concentration in the inert atmosphere, one of ordinary skill in the art at the time the invention was made would have readily appreciated that the inert gas atmosphere taught by the admitted prior art as modified by Shimada et al. would contain an oxygen concentration of 100 ppm or less as it was well known in the art that an inert atmosphere has a small concentration of oxygen not to exceed 100 ppm as shown for example by Kreil et al. As to excluding an oxygen concentration of 0-3 ppm, it is noted the inert atmosphere will always have a small ppm of oxygen such that it is readily understood in the art that an inert atmosphere does not require 0 ppm. Additionally, extra processing is required to achieve near 0 ppm and this extra effort is clearly not contemplated by Shimada et al. or Kreil et al. such that both

references are seen to teach conventional inert atmospheres wherein it would have been readily recognized that these atmospheres would include more than 4 ppm of oxygen. Further as to applicants results, while it is noted applicant shows unexpected results for 2 ppm as compared to 4 ppm the processing conditions required to achieve 2 ppm are not clear, and it is unclear if additional effort was required to reduce the inert atmosphere to 2 ppm that was not required to reduce the inert atmosphere to 4 ppm.

Shimada et al. are directed to bonding a fluorine resin, e.g. ETFE, to a polyamide, e.g. vinyl acetate copolymer. Shimada et al. teach subjecting the fluorine resin to a corona discharge treatment in an inert gas atmosphere, e.g. nitrogen, containing an organic compound having a functional group prior to bonding with the polyamide. Shimada et al. teach the corona discharge produces functional groups on and within the surface of the fluorine resin resulting in a surface having improved adhesive properties (Column 1, lines 15-17 and 64-66 and Column 2, lines 3 and 21-67 and Column 4, lines 5 and 6).

Kreil et al. are directed to adhesion promoting processes in an inert gas atmosphere. Kreil et al. teach that by inert atmosphere is meant an environment comprising a gas such as nitrogen gas and containing no more than 100 ppm of oxygen (Column 3, lines 28-32).

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art as applied above in paragraph 5, and further in view of Krause et al. (U.S. Patent 5,958,532).

The admitted prior art teaches all of the limitations in claim 9 as applied above except for a teaching of when the elastic adhesive body is crosslinked. Absent any unexpected results, it would have been well within the purview of one of ordinary skill in the art at the time the invention was made to crosslink the adhesive body taught by the admitted prior art after bonding

with the fluorine resin as it was well known in the art to crosslink after bonding as shown for example by Krause et al.

Krause et al. are directed to bonding fluoropolymer resin layers to thermosetting or thermoplastic elastomer layers wherein the fluoropolymer layers undergo corona discharge treatment in air to increase their bond strength. Krause et al. teach providing a layer of fluoropolymer resin, such as ethylene-tetrafluoroethylene (ETFE), subjecting the fluoropolymer layer to a corona discharge treatment in air, clamping the fluoropolymer layer to an elastomer layer, and heat treating the clamped layers at 180 °C for 30 minutes to cure/crosslink the elastomer layer and laminate the fluoropolymer layer to the elastomer layer (Column 3 lines 64-67 and Column 5, lines 19-27 and 44-47 and Column 11, lines 3-7 and 10-12).

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art, Shimada et al., and Kreil et al. as applied above in paragraph 7, and further in view of Krause et al.

The admitted prior art, Shimada et al., and Kreil et al. teach all of the limitations in claim 9 as applied above except for a teaching of when the elastic adhesive body is crosslinked. Absent any unexpected results, it would have been well within the purview of one of ordinary skill in the art at the time the invention was made to crosslink the adhesive body taught by the admitted prior art as modified by Shimada et al. and Kreil et al. after bonding with the fluorine resin as it was well known in the art to crosslink after bonding as shown for example by Krause et al.

Krause et al. are directed to bonding fluoropolymer resin layers to thermosetting or thermoplastic elastomer layers wherein the fluoropolymer layers undergo corona discharge

treatment in air to increase their bond strength. Krause et al. teach providing a layer of fluoropolymer resin, such as ethylene-tetrafluoroethylene (ETFE), subjecting the fluoropolymer layer to a corona discharge treatment in air, clamping the fluoropolymer layer to an elastomer layer, and heat treating the clamped layers at 180 °C for 30 minutes to cure/crosslink the elastomer layer and laminate the fluoropolymer layer to the elastomer layer (Column 3 lines 64-67 and Column 5, lines 19-27 and 44-47 and Column 11, lines 3-7 and 10-12).

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art as applied above in paragraph 5, and further in view of Kataoka et al. (U.S. Patent 6,307,145).

The admitted prior art teaches all of the limitations in claim 10 as applied above except for a teaching of how the elastic adhesive body (EVA) is crosslinked. One of ordinary skill in the art at the time the invention was made would have readily appreciated crosslinking the elastic adhesive body taught by the admitted prior art using a radical initiator such as organic peroxide as it was well known in the art to crosslink EVA using a radical initiator as shown for example by Kataoka et al. and only the expected results would be achieved.

Kataoka et al. are directed to a solar cell including a layer of crosslinked EVA. Kataoka et al. teach the EVA is crosslinked with an organic peroxide to prevent deformation or creep in the EVA at high temperatures (Column 6, lines 1-3 and 12-15).

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art, Shimada et al., and Kreil et al. as applied above in paragraph 7, and further in view of Kataoka et al.

The admitted prior art, Shimada et al., and Kreil et al. teach all of the limitations in claim 10 as applied above except for a teaching of how the elastic adhesive body (EVA) is crosslinked.

One of ordinary skill in the art at the time the invention was made would have readily appreciated crosslinking the elastic adhesive body taught by the admitted prior art as modified by Shimada et al. and Kreil et al. using a radical initiator such as organic peroxide as it was well known in the art to crosslink EVA using a radical initiator as shown for example by Kataoka et al. and only the expected results would be achieved.

Kataoka et al. are directed to a solar cell including a layer of crosslinked EVA. Kataoka et al. teach the EVA is crosslinked with an organic peroxide to prevent deformation or creep in the EVA at high temperatures (Column 6, lines 1-3 and 12-15).

Response to Arguments

12. Applicant's arguments with respect to claims 1-4 and 7-11 have been considered but are moot in view of the new ground(s) of rejection. Regarding the absorbance, applicant argues Shimada fails to disclose a corona discharge treatment according to the present invention. Applicant further argues the presently claimed invention does not require the organic compounds or graft polymerization taught by Shimada. It is noted the claims do not require any particular corona discharge process to achieve applicants claimed absorbance. Furthermore, applicant states the claimed absorbance is achieved by applying corona discharge to form functional groups on the surface of the fluorine resin. Applicant states it is the functional groups that enhance the bonding between the fluorine resin and the crosslinking body (Page 3 of Paper no. 11). Shimada is directed solely to a corona discharge process for a fluorine resin to provide the surface of the fluorine resin with functional groups wherein the function groups enhance the bonding between the fluorine resin and another substrate such that it appears the process for

achieving the claimed absorbance taught by applicant is the same as that taught by Shimada and one would readily expect the treated fluorine resin taught by Shimada to have the same absorbance as the treated fluorine resin taught by applicant as both produce a fluorine resin having function groups on its surface. Additionally, if it is seen that the treated fluorine resin taught by Shimada does not have the claimed absorbance, it is noted Shimada is solely directed to a method for creating a fluorine resin having a surface containing a number of functional groups sufficient to create a strong adhesive surface such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a number of functional groups on the surface sufficient to create the strong adhesive surface which would directly result in the surface having the claimed absorbance at 360 nm. Applicant further argues neither Shimada nor the admitted prior art teach controlling the oxygen concentration. See the above new grounds of rejection using Kreil et al. in response to this argument. Applicant further argues there is no motivation to combine the admitted prior art and Kataoka. It is noted both the admitted prior art and Kataoka are from the same art, i.e. solar cells. Furthermore, Kataoka is cited solely to show a well known technique for crosslinking EVA.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **703-305-7481**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the

organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

John L. Goff
August 28, 2003

Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700